

# PATENT ABSTRACTS OF JAPAN

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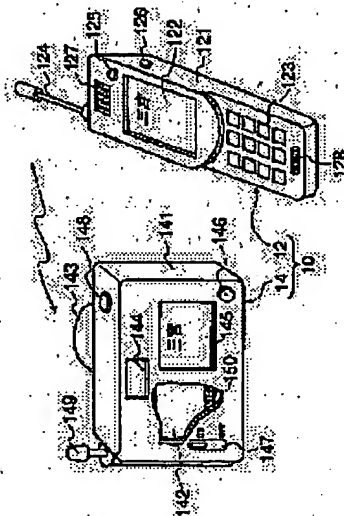
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## (54) PORTABLE COMMUNICATION DEVICE, IMAGE PHOTOGRAPHING DEVICE AND PLACE INFORMATION RECORDING SYSTEM

### (57)Abstract:

PROBLEM TO BE SOLVED: To enable an image photographing device to be down-sized.

SOLUTION: This place information recording system comprises a portable communication device 12 having a position measuring means for obtaining the place information of a local station and a transmission means for transmitting the obtained place information and the image photographing device 14 having a reception means for receiving the transmitted place information and a recording means for recording the received place information on a silver salt film 14 according to photographing operation. The position measuring means comprises a radio reception section which receives the radio waves containing the base information transmitted from a base station and an information conversion means for obtaining the place information from the base information included in the received radio waves.



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**CLAIMS**

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[Claim(s)]

[Claim 1] The pocket communication device which is a pocket communication device which gives said location information to the image photography equipment which comes to constitute location information possible [ record to a record medium ], and is characterized by to have a positioning means for acquiring the location information on a local station, and a transmitting means transmit the location information acquired by this positioning means to said image photography equipment.

[Claim 2] Said positioning means is a pocket communication device according to claim 1 characterized by having the wireless receive section which receives an electric wave including the base information transmitted from a base station, and a signal transduction means to acquire location information from the base information included in the received electric wave.

[Claim 3] With the 1st wireless receive section where said wireless receive section can receive the electric wave as a signal transduction medium used for the 1st communication system It has the 2nd wireless receive section which can receive the electric wave as a signal transduction medium used for the 2nd different communication system from said 1st communication system. Said positioning means The pocket communication device according to claim 2 characterized by having further a receive state detection means to detect the receive state of said 1st wireless receive section, and the means for switching which switches positioning actuation to said 2nd wireless receive section when said 1st wireless receive section does not fulfill predetermined receiving level.

[Claim 4] Said positioning means is the pocket communication device according to claim 2 characterized by to have further the GPS receive section which receives an electric wave including the positioning information from two or more satellites, a signal-transduction means acquire location information from the positioning information included in the received electric wave, a receive state detection means detect the receive state of said wireless receive section, and the means for switching that switch positioning actuation to said GPS receive section when said wireless receive section does not fulfill predetermined receiving level.

[Claim 5] With the 1st wireless receive section where said wireless receive section can receive the electric wave as a signal transduction medium used for the 1st communication system It has the 2nd wireless receive section which can receive the electric wave as a signal transduction medium used for the 2nd different communication system from said 1st communication system. Said receive state detection means It has a 1st receive state detection means to detect the receive state of said 1st wireless receive section, and a 2nd receive state detection means to detect the receive state of said 2nd wireless receive section. Said means for switching When the receive state of said 1st wireless receive section does not fulfill predetermined receiving level, positioning actuation is switched to said 2nd wireless receive section. The pocket communication device according to claim 4 characterized by being what switches positioning actuation to said GPS receive section when the receive state of said 2nd wireless receive section does not fulfill predetermined receiving level.

[Claim 6] Image photography equipment characterized by having a receiving means by which the location information which is image photography equipment which picturizes an optical image, and is transmitted from a pocket communication device according to claim 1 to 5 is receivable, and a record means to

record the received location information on a record medium according to photography actuation.

[Claim 7] It is image photography equipment according to claim 6 which is equipped with a maintenance means by which the location information transmitted from said pocket communication device can be held, and is characterized by said record means recording the location information currently held at said maintenance means on said record medium according to photography actuation.

[Claim 8] The location information record system which is a location information record system which recorded location information on the record medium according to photography actuation, and is characterized by having a pocket communication device according to claim 1 to 5 and image photography equipment according to claim 6 or 7.

[Claim 9] Said pocket communication device and said image photography equipment are a location information record system according to claim 8 characterized by being constituted possible [ direct communication ] using transceiver ability.

[Claim 10] Said pocket communication device and said image photography equipment are a location information record system according to claim 8 characterized by being constituted possible [ a communication link ] using the communication system of 1 in public mobile service.

[Claim 11] Said pocket communication device and said image photography equipment are a location information record system according to claim 8 characterized by being constituted possible [ direct communication ] using infrared communication system.

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**DETAILED DESCRIPTION.**

**[Detailed Description of the Invention]**

[0001]

[Field of the Invention] This invention relates to the pocket communication device which gives location information to image photography equipment, the image photography equipment which records the location information given from this pocket communication device on a record medium according to photography actuation, and a location information record system.

[0002]

[Description of the Prior Art] In recent years, the image photography equipment which can record the location information which built in GPS (Global Positioning System) is proposed (JP,4-70727,A). This GPS is the highly precise positioning system which receives the transmit data from at least three sets of satellites with the receiver on the earth as everyone knows, and measured the three-dimension location of a receiver from those received data. Since the image photography equipment which contained such GPS can record the location information corresponding to a photography image automatically to a record medium at the time of photography, when location information needs to be recorded, it is wide opened from the troublesomeness of inputting location information by manual actuation, and becomes the thing excellent in convenience.

[0003] Moreover, an electric wave with a small output including ID information (base information) transmitted from the base station of PHS (Personal Handy phone System) which is one of the communication system in the public mobile service in Japan (for example) The radio set which receives an electric wave with a big output including ID information (base information) transmitted from base stations, such as a radio set which receives the electric wave of the about 20mW Koide force or a cellular phone which is other one of the communication system in public mobile service of Japan, and a land mobile radiotelephone, is used. The image photography equipment which acquired location information from ID information on the base station received with these radio sets is proposed (JP,10-243325,A). Since the image photography equipment having such a radio set can record the location information corresponding to a photography image automatically to a record medium at the time of photography like the image photography equipment which contained GPS, when location information needs to be recorded, it is wide opened from the troublesomeness of inputting location information by manual actuation, and becomes the thing excellent in convenience.

[0004]

[Problem(s) to be Solved by the Invention] However, since advanced data processing is the need, while power consumption becomes large, a built-in cell becomes large in connection with it and image photography equipment is enlarged with the image photography equipment which contained GPS, reception may become difficult and the electric wave of GPS has the problem that the situation which is the need where location information is not acquired by the way arises in the location where indoor and a big building stand in a row.

[0005] Moreover, with the image photography equipment which acquired location information from ID information on the base station received with the radio set, since so big power consumption is not needed, compared with the image photography equipment which contained GPS, a miniaturization becomes possible, but since the signal transduction section for acquiring a radio set and location information etc. is needed, there is a problem that still enlarging is not avoided.

[0006] This invention was made in view of this situation, and aims at offering the pocket communication device which promotes the miniaturization of the image photography equipment which can record location information, its image photography equipment, and a location information record system.

[0007]

[Means for Solving the Problem] In order to attain the above-mentioned purpose, invention of claim 1 is the pocket communication device which gives said location information to the image photography equipment which comes to constitute location information possible [ record to a record medium.], and is characterized by to have a positioning means for acquiring the location information on a local station, and a transmitting means transmit the location information acquired by this positioning means to image photography equipment.

[0008] According to this configuration, the location information which is the present location of a local station is acquired by the pocket communication device, and this location information is transmitted to image photography equipment. With image photography equipment, the transmitted location information is recorded on record media, such as a silver halide film. For this reason, the positioning means for acquiring location information will be needed for image photography equipment, and the miniaturization of image photography equipment is promoted.

[0009] Moreover, in what invention of claim 2 requires for claim 1, said positioning means is characterized by having the wireless receive section which receives an electric wave including the base information transmitted from a base station, and a signal transduction means to acquire location information from the base information included in the received electric wave.

[0010] According to this configuration, an electric wave including the base information transmitted from a base station is received in a wireless receive section, and the location information which is the present location of a local station is acquired based on this received base information. For this reason, the location information on a local station can be quickly acquired without performing complicated data

processing etc.

[0011] In what invention of claim 3 requires for claim 2 moreover, said wireless receive section With the 1st wireless receive section which can receive the electric wave as a signal transduction medium used for the 1st communication system It has the 2nd wireless receive section which can receive the electric wave as a signal transduction medium used for the 2nd different communication system from said 1st communication system. Said positioning means It is characterized by having further a receive state detection means to detect the receive state of said 1st wireless receive section, and the means for switching which switches positioning actuation to said 2nd wireless receive section when said 1st wireless receive section does not fulfill predetermined receiving level.

[0012] According to this configuration, when the receive state of the 1st wireless receive section is good, location information is acquired based on the base information received by the 1st wireless receive section, and when the receive state of the 1st wireless receive section is not good, location information is acquired based on the base information received by the 2nd wireless receive section. For this reason, location information can be acquired in large area and location information can be certainly recorded according to photography actuation.

[0013] In what invention of claim 4 requires for claim 2 moreover, said positioning means With the GPS receive section which receives an electric wave including the positioning information from two or more satellites A signal transduction means to acquire location information from the positioning information included in the received electric wave, It is characterized by having further a receive state detection means to detect the receive state of said wireless receive section, and the means for switching which switches positioning actuation to said GPS receive section when said wireless receive section does not fulfill predetermined receiving level.

[0014] According to this configuration, when the receive state of a wireless receive section is good, location information is acquired based on the base information received by the wireless receive section, and when the receive state of a wireless receive section is not good, location information is acquired based on the positioning information received by the GPS receive section. For this reason, location information can be acquired in large area and location information can be certainly recorded according to photography actuation. Moreover, since a GPS receive section does not operate when the receive state of a wireless receive section is good, it becomes unnecessary to make a built-in cell large beyond the need, and enlargement of a pocket communication device is controlled.

[0015] In what invention of claim 5 requires for claim 4 moreover, said wireless receive section It has the 1st wireless receive section and the 2nd wireless receive section where communication system differs mutually and which can receive an electric wave. Said receive state detection means It has a 1st receive state detection means to detect the receive state of said 1st wireless receive section, and a 2nd receive state detection means to detect the receive state of said 2nd wireless receive section. Said means for switching It is characterized by being what switches positioning actuation to said 2nd wireless receive section when the receive state of said 1st wireless receive section does not fulfill predetermined receiving level, and switches positioning actuation to said GPS receive section when the receive state of said 2nd wireless receive section does not fulfill predetermined receiving level.

[0016] According to this configuration, when the receive state of the 1st wireless receive section is good, location information is acquired based on the base information received by the 1st wireless receive section, and when the receive state of the 1st wireless receive section is not good, location information is acquired based on the base information received by the 2nd wireless receive section. Moreover, when the receive state of the 2nd wireless receive section is not good, location information is acquired based on the positioning information received by the GPS receive section. For this reason, location information can be acquired in larger area and location information can be certainly recorded according to photography actuation. Moreover, since a GPS receive section does not operate when the receive state of the 1st wireless receive section or the 2nd wireless receive section is good, it becomes unnecessary to make a built-in cell large beyond the need, and enlargement of a pocket communication

device is controlled.

[0017] Moreover, invention of claim 6 is image photography equipment which picturizes an optical image, and is characterized by having a receiving means by which the location information transmitted from a pocket communication device according to claim 1 to 5 is receivable, and a record means to record the received location information on a record medium according to photography actuation.

[0018] According to this configuration, the location information transmitted from the pocket communication device is received, and this received location information is recorded on record media, such as a silver halide film. For this reason, the positioning means for acquiring location information will be needed for image photography equipment, and the miniaturization of image photography equipment is promoted.

[0019] Moreover, invention of claim 7 is equipped with a maintenance means by which the location information transmitted from said pocket communication device can be held in the thing concerning claim 6, and it is characterized by said record means recording the location information currently held at said maintenance means on said record medium according to photography actuation.

[0020] While the location information transmitted from the pocket communication device is held at a maintenance means according to this configuration, the location information currently held at this maintenance means is read according to photography actuation, and is recorded on a record medium. For this reason, in the case where a photograph is taken in the same location, as a result of it becoming unnecessary to acquire location information from a pocket communication device at every photography, convenience will be raised.

[0021] Moreover, invention of claim 8 is the location information record system which recorded location information on the record medium according to photography actuation, and is characterized by having a pocket communication device according to claim 1 to 5 and image photography equipment according to claim 6 or 7.

[0022] According to this configuration, the location information which is the present location of a local station is acquired by the pocket communication device, and this location information is transmitted to image photography equipment. On the other hand, with image photography equipment, the transmitted location information is received and it is recorded on record media, such as a silver halide film. For this reason, the positioning means for acquiring location information will be needed for image photography equipment, and the miniaturization of image photography equipment is promoted.

[0023] Moreover, in what invention of claim 9 requires for claim 8, it is characterized by constituting said pocket communication device and said image photography equipment possible [ direct communication ] using transceiver ability.

[0024] According to this configuration, the location information acquired with the pocket communication device is directly transmitted to image photography equipment, without minding a base station. For this reason, as a result of it becoming unnecessary to give a communication means with a base station to image photography equipment, the configuration of image photography equipment is simplified and a miniaturization is promoted.

[0025] Moreover, it is characterized by constituting invention of claim 10 possible [ a communication link ] in the thing concerning claim 8 using the communication system [ in / in said pocket communication device and said image photography equipment / public mobile service. ] of 1.

[0026] According to this configuration, the location information acquired with the pocket communication device is transmitted to image photography equipment using the communication system in public mobile service. For this reason, the location information acquired with the pocket communication device is certainly transmitted to image photography equipment.

[0027] Moreover, in what invention of claim 11 requires for claim 8, it is characterized by constituting said pocket communication device and said image photography equipment possible [ direct communication ] using infrared communication system.

[0028] According to this configuration, the location information acquired with the pocket communication

device is transmitted to image photography equipment using infrared communication system. For this reason, the location information acquired with the pocket communication device is certainly transmitted to image photography equipment.

[0029]

[Embodiment of the Invention] Drawing 1 is the appearance perspective view showing the outline configuration of the location information record system which consists of a pocket communication device concerning the 1st operation gestalt of this invention, and image photography equipment. In this drawing, the location information record system 10 consists of a pocket communication device 12 which comes to constitute that location information in ready-for-sending ability to image photography equipment, and image photography equipment 14 which comes to constitute the location information transmitted from the pocket communication device 12 possible [ record to a record medium ] while acquiring the location information on a local station. Both these pocket communication devices 12 and image photography equipment 14 exist in the location which approached mutually like [ when the same people possess ].

[0030] The pocket communication device 12 is a thing using PHS (Personal Handy phone System) which is one of the communication system of the public mobile service in Japan. While receiving an electric wave (for example, electric wave of the about 20mW Koide force) with a small output including ID information on a base station to this base station transmitted (base information) While it is constituted possible [ a message ] with the other party through a base station, transmitting and receiving a predetermined control signal required for a message, the location information which is the present location of a local station is detected using ID information transmitted from a base station, and image photography equipment 14 constitutes this location information at ready-for-sending ability. Transmission to this image photography equipment 14 gives the transceiver ability which performs direct communication, without minding a base station to the pocket communication device 12, and is performed using this transceiver ability.

[0031] Moreover, the display 122 which consists of a liquid crystal panel for the pocket communication device 12 to display various information, such as a present location of the telephone number, the condition [ exhausting ] of a built-in cell, a receive state, and a local station, on the upper part of the case 121 of a long configuration is arranged, and it comes to arrange the key section 123 which turns into the lower part of the case 121 from a ten key and various function keys. Moreover, the upper part of a case 121 equipped with an elastic antenna 124, the detection directions carbon button 125 which gives the directions which detect the location information which is the present location of a local station, the transfer directions carbon button 126 which gives the directions which transmit the detected location information to image photography equipment 14 using the transceiver ability in PHS, and the loudspeaker 127 which output the other party's voice, and it has the microphone 128 which inputs voice into the lower part of a case 121.

[0032] Image photography equipment 14 is the still camera which adopted the film photo method which picturizes an optical image, receives the location information transmitted from the pocket communication device 12, and constitutes this received location information possible [ record to the magnetic-recording field established in the silver halide film which is a record medium ].

[0033] This image photography equipment 14 is equipped with the lens section 143 to which image formation of the photographic subject is carried out on the silver halide film 142 of the shape of a long picture with which the front face of the box-like case 141 is loaded inside. The finder section 144 for checking a photographic subject by looking at the tooth back of a case 141, The display 145 which consists of a liquid crystal panel for displaying predetermined photography information, such as a photography location and a photography date, etc., It has the manual operation button 146 for displaying a photography location by manual actuation, and the electric power switch 147 switched to the condition which can be driven, and drive disabling by ON/OFF actuation. Moreover, the top face of a case 141 is equipped with the release carbon button 148 and the antenna 149. Moreover, the magnetic-recording



field 150 where magnetic powder was applied and constituted along with the longitudinal direction is established in the edge of a silver halide film 142.

[0034] Drawing 2 is a block diagram for explaining the function of the pocket communication device 12. The pocket communication device 12 is equipped with the wireless transceiver section 20, the channel codec section 22, the voice codec section 24, the control section 26 that controls actuation of each part, and the power supply section (built-in cell) 28 which supplies power to each part in this drawing. The loudspeaker 127 and the microphone 128 are connected to this voice codec section 24.

[0035] Moreover, a display 122, the key section 123, the detection directions carbon button 125, and the transfer directions carbon button 126 are connected to a control section 26, and the 1st storage section 32 and the 2nd storage section 34 are further connected to it. Moreover, illustration is omitted although a level-conversion circuit / 32K data interface for connecting compression/expanding section and the personal computer which compress voice data into a control section 26 when recording receiving contents on memory, and are elongated when reproducing etc. is connected.

[0036] While the wireless transceiver section 20 communicates a control signal predetermined between the wireless transceiver sections 40 which image photography equipment 14 mentions later, it is what has the function to transmit the detected location information to image photography equipment 14. It has the wireless section 201 which receives the electric wave from a base station and performs magnification, frequency conversion, etc., the recovery section 202 which restores to the signal received in the wireless section 201, and obtains predetermined received data, and the modulation section 203 which modulates the signal which should be transmitted and obtains predetermined transmit data.

[0037] In addition, the wireless receive section which is a receiving means consists of the wireless section 201 and the recovery section 202, and the wireless transmitting section which is a transmitting means in the wireless section 201 and the modulation section 203 is constituted. Moreover, the antenna 124 is connected to the wireless section 201.

[0038] The channel codec section 22 performs assembly processing of the transmit data to the modulation section 203 while performing division processing of the received data to which it restored in the recovery section 202. While the voice codec section 24 is equipped with the speech processing section 241, the ADPCM (Adaptive differential PCM) transformer coder section 242, and the PCM codec section 243, double-sign-izes the received data sent out from the channel codec section 22 to an analog sound signal and outputs the voice of the other party from a loudspeaker 127, it encodes the voice which was inputted into the microphone 128 and which should transmit to ADPCM data, and sends it out to the channel codec section 22.

[0039] The control section 26 is equipped with RAM (Random Access Memory) 263 which memorizes temporarily CPU (Central Processing Unit) 261 which performs operation control, ROM (Read-Only Memory) 262 the predetermined processing program was remembered to be, and processed data. Moreover, CPU 261 is equipped with a 1st receive state detection means 264 to detect the receive state of the wireless transceiver section 20, a quality distinction means 265 to distinguish the quality of a receive state, and each functional implementation means as an ID information extract means 266 to extract ID information on a base station (base information) out of the various data transmitted from the base station.

[0040] The 1st receive state detection means 264 detects the received electrical potential difference in the recovery section 202, and when with [ means / the quality distinction means 265 compares the detected received electrical potential difference with the reference voltage level set up beforehand and ] a reference voltage level [ more than ] a receive state judges with it being good and does not fulfill a reference voltage level, a receive state judges that it is not good.

[0041] The 1st storage section 32 consists of memory, such as ROM (Read-Only Memory), associates mutually ID information on each base station, and the location information in which the base station where this ID information was assigned is installed, and makes them memorize in a table format. For example, if a certain ID information is assigned to the base station currently installed in Sannomiya of



Kobe-shi, it matches with the ID information, and the location information of "Hyogo Prefecture", "Kobe", and "Sannomiya" is encoded and memorized by the 1st storage section 32. Consequently, according to ID information having been extracted by ID information extract means 266, the location information corresponding to that ID information is read from the 1st storage section 32, and while this location information is memorized by RAM263, "Kobe", "Sannomiya", etc. are expressed to a display 122 as the kanji.

[0042] Here, a positioning means consists of an ID information extract means 266 to extract ID information on a base station, a wireless receive section which a signal transduction means consists of the 1st storage sections 32 which acquire location information based on extracted ID information, and consists of the wireless section 201 and the recovery section 202, and an above-mentioned signal transduction means.

[0043] After the 2nd storage section 34 consists of rewritable memory electrically [EEPROM (Electrically Erasable Programmable Read-Only Memory) etc.] and operates the predetermined function key in the key section 123, it operates a ten key and makes number information, such as the telephone number and a name, memorize.

[0044] Drawing 3 is drawing showing the file format of the location information in the 1st storage section 32, and is constituted from this operation gestalt by the data whose location information is 16 bits. That is, the exception of "domestic" and a "foreign country" is shown by the table A which consists of 1 bit of a high order, and location information, such as each district, such as "Kinki", "China", and "Shikoku", and all prefectures, is shown by the table B which consists of the following 6 bits. Moreover, location information, such as cities, such as "Kobe" and "Ashiya", and a group, is shown by the table C which consists of the following 6 bits; and location information, such as towns and villages, such as "Sannomiya" and a "building in foreign style", and a famous place, is shown by the table D constituted at a low-ranking triplet.

[0045] In addition, although the location information memorized by Table D is read with this operation gestalt, location information can be chosen from one table of the tables A and C by operating the predetermined function key of the key section 123.

[0046] Drawing 4 is a block diagram for explaining the function of image photography equipment 14. Image photography equipment 14 is equipped with the wireless transceiver section 40, the channel codec section 42, the codec section 44, LUT (Look Up Table)46 that analyzes location information, the storage section 48 which consists of RAM which constitutes the data latch section, the magnetic-recording section 50, the control section 52 which controls actuation of each part, and the power supply section (built-in cell) 54 which supplies power to each part in this drawing.

[0047] It is what has the function to receive the location information transmitted from the pocket communication device 12, the wireless transceiver section 40 using PHS and communicating a predetermined control signal between the wireless transceiver sections 20 of the pocket communication device 12 by control of a control section 52. The wireless section 401 which performs predetermined signal processing of receiving the data transmitted from the pocket communication device 12; and amplifying the input signal, It has the recovery section 402 which restores to the signal received in this wireless section 401, and obtains predetermined received data, and the modulation section 403 which modulates the control signal which should be transmitted and obtains predetermined transmit data.

[0048] In addition, the wireless receive section which is a receiving means consists of the wireless section 401 and the recovery section 402, and the wireless transmitting section which is a transmitting means in the wireless section 401 and the modulation section 403 is constituted. Moreover, the antenna 149 is connected to the wireless section 401.

[0049] Division processing of the received data to which it restored in the recovery section 402 is performed, the codec section 44 is equipped with the ADPCM (Adaptive differential PCM) transformer coder section 441 and the PCM codec section 442, and, as for the channel codec section 42, coding etc. carries out the received data sent out from the channel codec section 42. LUT46 analyzes the received

location information which was encoded, and acquires the location information as concrete location names, such as "Kobe" and "Sannomiya." Whenever the storage section 48 receives the location information acquired by LUT46 from the pocket communication device 12, it updates the location information, it holds, and even after it outputs the location information to the magnetic-recording section 50, it maintains the location information.

[0050] The magnetic-recording section 50 has the magnetic head 501, and records the location information encoded by the magnetic-recording field 150 of a silver halide film 142 by this magnetic head 501. In addition, the location information recorded on the magnetic-recording field 150 is used for retrieval of the photoed coma, or is used for displaying photography information, such as a photography location name of a photographic subject, and a date, on a silver halide film 142.

[0051] The control section 52 is equipped with RAM (Random Access Memory)523 which memorizes temporarily CPU (Central Processing Unit)521 which performs operation control, ROM (Read-Only Memory)522 the predetermined processing program was remembered to be, and processed data. Moreover, the feed device section 60 which performs rolling up and rewinding, the display 145, the manual operation button 146, the electric power switch 147, and the release carbon button 148 are connected to CPU521. [ which adjust shutter speed and a diaphragm ] [ of the exposure controlling mechanism section 58 and a silver halide film 142 ]

[0052] Drawing 5 is a flow chart for explaining actuation of the location information record system 10 constituted as mentioned above. First, each electric power switch of the pocket communication device 12 and image photography equipment 14 is turned on, and it changes into the condition that the location information record system 10 can operate (step # 1). And it is distinguished whether the detection directions carbon button 125 of the pocket communication device 12 was turned on (step # 3), and if a judgment is affirmed, it will be distinguished whether the receive state of the wireless transceiver section 20 is good (step # 5). In addition, when a judgment is denied by step #3, it stands by until the detection directions carbon button 125 is turned on.

[0053] Step # If a judgment is affirmed by 5, ID information will be extracted by ID information extract means 266 out of the signal to which it restored in the recovery section 202 of the wireless transceiver section 20, and the location information corresponding to the extracted ID information will be retrieved from the 1st storage section 32 (step # 7). This retrieval is performed based on the table D shown in drawing 3 , and the retrieved location information is memorized by RAM263 and displayed on coincidence as "Sannomiya" by the display 122 (step # 9).

[0054] When the location name displayed on the display 122 is not suitable, a suitable location name can be chosen from Table D by pushing the predetermined function key of the key section 123. Moreover, it is also possible to choose location information from Table B and Table C suitably by pushing a predetermined function key as mentioned above. In this case, that selected location information is memorized by RAM263, and is displayed on coincidence by the display 122.

[0055] Step # When a judgment is denied by 5, manual selection of the suitable location information is made from one table of the tables B and D by pushing the predetermined function key of the key section 123 (step # 11). By pushing a predetermined function key and deciding location information, it shifts to step #9, and the location information by which manual selection was made by this is memorized by RAM263, and is displayed on coincidence by the display 122.

[0056] Subsequently, if it is distinguished whether the transfer directions carbon button 126 of the pocket communication device 12 was turned on (step # 13) and a judgment is affirmed, while the location information memorized by RAM263 will be read, it encodes in the channel codec section 22, and this location information is transmitted by the wireless transceiver section 20 through an antenna 124 (step # 15). In addition, when a judgment is denied by step #13, it stands by until the transfer directions carbon button 126 is turned on.

[0057] Step # It is received in the wireless transceiver section 40 of image photography equipment 14, the location information transmitted by 15 gets over (step # 17), the location information encoded is

changed into the location data which correspond from LUT46 (step # 19), and this changed location data is memorized by the storage section 48, and is displayed on coincidence as "Sannomiya" by the display 145 (step # 21).

[0058] If it is distinguished whether the release carbon button 148 was turned on (step # 23) and a judgment is affirmed in this condition, a series of photography actuation of opening and closing a shutter by the exposure controlling mechanism section 58 will be performed, and the optical image of a photographic subject will be recorded on a silver halide film 142 (step # 25). And rolling up by the following coma is performed and the location information encoded by coincidence to the magnetic recording field 150 of a silver halide film 142 is recorded by the magnetic head 501 (step # 27).

[0059] Step # When a judgment is denied by 23, it stands by until the release carbon button 148 is turned on. Then, it is distinguished whether the electric power switch was turned off (step # 29), if a judgment is affirmed, a series of actuation will be ended, and if a judgment is denied, actuation of return and after that will be repeatedly performed by step #23. In addition, when the photography location was changed and retrieval of a location name is newly needed, actuation after step #3 will be performed repeatedly.

[0060] Thus, since the pocket communication device 12 is equipped with the positioning means for acquiring location information according to the location information record system 10 which consists of a pocket communication device 12 concerning the 1st constituted operation gestalt, and image photography equipment 14, a positioning means becomes unnecessary at image photography equipment 14, and the miniaturization of image photography equipment 14 is promoted. Moreover, since the service area of each base station is what acquires location information using narrow (that is, there is many) installation of the base station of predetermined within the limits compared with communication system, such as a cellular phone) PHS compared with communication system, such as a cellular phone and a land mobile radiotelephone, detailed location information can be acquired.

[0061] In addition, since the use population using PHS of a pocket communication device is increasing in recent years, the location information record system 10 which can promote the miniaturization of image photography equipment can build easily only by forming the positioning means etc. in the pocket communication device using this conventional PHS.

[0062] Drawing 6 is the appearance perspective view showing the outline configuration of the location information record system which consists of a pocket communication device concerning the 2nd operation gestalt of this invention, and image photography equipment. In this drawing, the location information record system 70 consists of a pocket communication device 72 which comes to constitute that location information in ready-for-sending ability to image photography equipment, and image photography equipment 74 which comes to constitute the location information transmitted from the pocket communication device 72 possible [ record to a record medium ] while acquiring the location information on a local station. These pocket communication devices 72 and image photography equipment 74 exist in the location which approached mutually like the case of the 1st operation gestalt.

[0063] Since an appearance structure top is what becomes the same configuration as the pocket communication device 12 and the image photography equipment 14 in the operation gestalt of the above 1st, these pocket communication devices 72 and image photography equipment 74 omit explanation by attaching the same reference mark about the same component.

[0064] Drawing 7 is a block diagram for explaining the function of the pocket communication device 72, since the amount of radical headquarters is what becomes the same configuration as the pocket communication device 12 in the 1st operation gestalt, attaches the reference mark same about the same component, and, below, explains it focusing on difference with the pocket communication device 12. namely, -- carrying -- a communication device -- 72 -- Japan -- it can set -- the public -- mobile service -- communication system -- one -- a \*\* -- it is -- PHS (the 1st communication system) -- using -- wireless -- transmission and reception -- the section -- 20 -- adding -- Japan -- it can set -- the public -- mobile service -- others -- communication system -- it is -- a cellular phone -- a land

mobile radiotelephone — a system (the 2nd communication system) — using — wireless — transmission and reception — the section — 20 — ' — having — \*\*\*\* — a point — being different — \*\*\*\*.

[0065] While this wireless transceiver section 20' receives an electric wave with a big output including ID information on this base station transmitted from a base station (base information) and it is constituted possible [ a message ] with the other party through a base station, transmitting and receiving a predetermined control signal required for a message, it detects the location information which is the present location of a local station using the ID information transmitted from a base station, and has the function of transmitting this location information that detected to image photography equipment 74. Transmission to this image photography equipment 74 gives the transceiver ability which performs direct communication, without minding a base station to the pocket communication device 72, and is performed using this transceiver ability.

[0066] moreover — wireless — transmission and reception — the section — 20 — ' — a cellular phone — a land mobile radiotelephone — etc. — a base station — from — an electric wave — receiving — magnification — frequency conversion — etc. — carrying out — wireless — the section — 201 — ' — wireless — the section — 201 — ' — having received — a signal — getting over — predetermined — received data — obtaining — a recovery — the section — 202 — ' — it should transmit — a signal — becoming irregular — predetermined — transmit data — obtaining — a modulation — the section — 203 — ' — having — \*\*\*\*. In addition, the wireless receive section which is a receiving means consists of wireless section 201' and recovery section 202', and the wireless transmitting section which is a transmitting means in wireless section 201' and modulation section 203' is constituted. Moreover, the antenna 124 is connected to wireless section 201'.

[0067] Moreover, while equipping CPU261 with the functional implementation means as a 2nd receive state detection means 267 to detect the receive state of wireless transceiver section 20', by having wireless transceiver section 20', it is different in that the wireless transceiver section 20 is connected to a power supply section 28 through a switching means SW1, and wireless transceiver section 20' is connected to the power supply section 28 through the switching means SW2.

[0068] This 2nd receive state detection means 267 detects the received electrical potential difference for example, in recovery section 202'. Switching means SW1 and SW2 constitute the means for switching of the wireless transceiver section 20 and wireless transceiver section 20', consist of solid state switches etc., and are connected to CPU261. And it is set-up so that a switching means SW1 may serve as ON in an initial state, a switching means SW2 may serve as OFF and the wireless transceiver section 20 may operate, and it is set up so that a switching means SW1 may serve as OFF when the receive state of the wireless transceiver section 20 is not good, a switching means SW2 may serve as ON and wireless transceiver section 20' may operate.

[0069] In addition, this means for switching can also be constituted by establishing switching means, such as a solid state switch, between wireless transceiver section 20' and the channel codec section 22 between the wireless transceiver section 20 and the channel codec sections 22, respectively.

[0070] Drawing 8 is a block diagram for explaining the function of image photography equipment 74, since the amount of radical headquarters is what becomes the same configuration as the image photography equipment 14 in the 1st operation gestalt, attaches the reference mark same about the same component, and, below, explains it focusing on difference with image photography equipment 14. namely, — an image — photography — equipment — 74 — Japan — it can set — the public — mobile service — communication system — one — a \*\* — it is — PHS — using — wireless — transmission and reception — the section — 40 — adding — Japan — it can set — the public — mobile service — others — communication system — it is — a cellular phone — a land mobile radiotelephone — etc. — a system — using — wireless — transmission and reception — the section — 40 — ' — having — \*\*\*\* — a point — being different — \*\*\*\*.

[0071] This wireless transceiver section 40' is what has the function to receive the location information

transmitted from the pocket communication device 72, communicating a control signal predetermined between wireless transceiver section 20' of the pocket communication device 72. the wireless section 401 which performs predetermined signal processing of receiving the electric wave from wireless transceiver section 20', and amplifying the input signal — ' — wireless — the section — 401 — ' — having received — a signal — getting over — predetermined — received data — obtaining — a — recovery — the section — 402 — ' — it should transmit — a control signal — becoming irregular — predetermined — transmit data — obtaining — a modulation — the section — 403 — ' — having —  
 \*\*\*\*.

[0072] In addition, the wireless receive section which is a receiving means consists of wireless section 401' and recovery section 402', and the wireless transmitting section which is a transmitting means in wireless section 401' and modulation section 403' is constituted. Moreover, the antenna 149 is connected to wireless section 401'.

[0073] Drawing 9 is a flow chart for explaining actuation of the location information system 70 constituted as mentioned above. First, each electric power switch of the pocket communication device 72 and image photography equipment 74 is turned on, and it changes into the condition that the location information record system 70 can operate (step # 31). In this initial state, it is in the condition that the wireless transceiver section 20 of the pocket communication device 72 can operate. And it is distinguished whether the detection directions carbon button 125 of the pocket communication device 72 was turned on (step # 33), and if a judgment is affirmed, it will be distinguished whether the receive state of the wireless transceiver section 20 is good (step # 35). In addition, if a judgment is denied by step #33, it will stand by until the detection directions carbon button 125 is turned on.

[0074] Step # If a judgment is affirmed by 35, ID information will be extracted by ID information extract means 266 out of the signal to which it restored in the recovery section 202 of the wireless transceiver section 20, and the location information corresponding to the extracted ID information will be retrieved from the 1st storage section 32 (step # 37). This retrieval is performed based on the table D shown in drawing 3 like the case of the 1st operation gestalt, and the searched location name is memorized by RAM263 and displayed on coincidence as "Sannomiya" by the display 122 (step # 39).

[0075] When the location information displayed on the display 122 is not suitable, suitable location information can be chosen from Table D by pushing the predetermined function key of the key section 123. Moreover, it is also possible to choose location information from Table B and Table C suitably by pushing a predetermined function key. In this case, that selected location information is memorized by RAM263, and is displayed on a display 122.

[0076] Step # If a judgment is denied by 35, the wireless transceiver section 20 which suited the drive condition by the switching means SW1 and SW2 which are means for switching will be intercepted, and wireless transceiver section 20' which suited the cut off state will drive (step # 41). And it is distinguished whether the receive state of wireless transceiver section 20' is good succeeding (step # 43), and if a judgment is affirmed, it will shift to step #37. That is, ID information (ID information on the base station of a cellular phone or a land mobile radiotelephone) will be extracted by ID information extract means 283 out of the signal to which it restored by recovery section 202 of wireless transceiver section 20' , and the location information corresponding to the extracted ID information will be retrieved from the 1st storage section 32. Retrieval in this case is performed based on the table C shown in drawing 3 , and it is displayed on a display 122 as "Kobe" while the retrieved location information is memorized by RAM263.

[0077] In addition, when a judgment is denied by step #43 Manual selection of the suitable location information is made from one table of the tables B and D by pushing the predetermined function key of the key section 123 (step # 45). By pushing a predetermined function key and deciding location information, it shifts to step #39, and the location information by which manual selection was made by this is memorized by RAM263, and is displayed on coincidence by the display 122.

[0078] Subsequently, if it is distinguished whether the transfer directions carbon button 126 of the

pocket communication device 72 was turned on (step # 47) and a judgment is affirmed, while the location information memorized by RAM263 will be read. It encodes in the channel codec section 22, and this location information is transmitted by the wireless transceiver section 20 (when using PHS) or wireless transceiver section 20' through an antenna 124 (step # 49). (when using systems, such as a cellular phone) In addition, when a judgment is denied by step #47, it stands by until the transfer directions carbon button 126 is turned on.

[0079] Step # It is received by the wireless transceiver section 40 (when using PHS) of image photography equipment 74, or wireless transceiver section 40' (when using systems, such as a cellular phone), and the location information transmitted by 49 gets over (step # 51). The location information encoded is changed into the location data which correspond from LUT46 (step # 53). This changed location data is memorized by the storage section 48, and the location information on a display 122 and these contents (for example, "Sannomiya" or "Kobe") is displayed on coincidence by the display 145 (step # 55).

[0080] If it is distinguished whether the release carbon button 148 was turned on (step # 57) and a judgment is affirmed in this condition, a series of photography actuation of opening and closing a shutter by the exposure controlling mechanism section 58 will be performed, and the optical image of a photographic subject will be recorded on a silver halide film 142 (step # 59). And rolling up by the following coma is performed and the location information encoded by coincidence to the magnetic-recording field 150 of a silver halide film 142 is recorded by the magnetic head 501 (step # 61). Step # When a judgment is denied by 57, it stands by until the release carbon button 148 is turned on.

[0081] Then, it is distinguished whether the electric power switch was turned off (step # 63), if a judgment is affirmed, a series of actuation will be ended, and if a judgment is denied, actuation of return and after that will be repeatedly performed by step #57. In addition, when the photography location was changed and retrieval of location information is newly needed, actuation after step #33 will be performed repeatedly.

[0082] Thus, since the pocket communication device 72 is equipped with the positioning means for acquiring location information according to the location information record system 70 which consists of a pocket communication device 72 concerning the 2nd constituted operation gestalt, and image photography equipment 74, a positioning means becomes unnecessary at image photography equipment 74, and the miniaturization of image photography equipment 74 is promoted. Moreover, location information is preferentially acquired using PHS, and in PHS, since the service area of each base station is narrow compared with communication system, such as a cellular phone and a land mobile radiotelephone, detailed location information can be acquired.

[0083] Moreover, in the area which cannot use PHS by the reason of the base station not being installed, location information can be acquired by using communication system with which the base station is installed comparatively broadly, such as a cellular phone and a land mobile radiotelephone, and it becomes possible to record this location information on the record medium of image photography equipment certainly. In addition, since the use population using PHS of a pocket communication device is increasing in recent years, the location information record system 70 can build easily only by establishing the wireless transceiver section which uses communication system, such as a cellular phone, for the conventional pocket communication device using this PHS, a positioning means, etc.

[0084] Drawing 10 is the appearance perspective view showing the outline configuration of the location information record system which consists of a pocket communication device concerning the 3rd operation gestalt of this invention, and image photography equipment. In this drawing, the location information record system 90 consists of a pocket communication device 92 which comes to constitute that location information in ready-for-sending ability to image photography equipment, and image photography equipment 94 which comes to constitute the location information transmitted from the pocket communication device 92 possible [ record to a record medium ] while acquiring the location information on a local station. These pocket communication devices 92 and image photography



equipment 94 exist in the location which approached mutually like the case of the 1st and 2nd operation gestalt.

[0085] Since an appearance structure top is what becomes the same configuration as the pocket communication devices 12 and 72 and the image photography equipments 14 and 74 in the 1st and 2nd operation gestalt, these pocket communication devices 92 and image photography equipment 94 omit explanation by attaching the same reference mark about the same component. In addition, the elastic antenna 961 for GPS is attached in the case 121 at the pocket communication device 92.

[0086] Drawing 11 is a block diagram for explaining the function of the pocket communication device 92, since the amount of radical headquarters is what becomes the same configuration as the pocket communication device 72 in the 2nd operation gestalt, attaches the reference mark same about the same component, and, below, explains it focusing on difference with the pocket communication device 72. That is, in addition to wireless transceiver section 20' using communication system, such as the wireless transceiver section 20 and the cellular phone using PHS, and a land mobile radiotelephone, the pocket communication device 92 is different at the point equipped with the GPS (Global Positioning System) receive section 96 which receives an electric wave including the positioning information (criteria information for computing positional information, such as LAT and LONG) transmitted from two or more satellites.

[0087] Moreover, while equipping CPU261 with the functional implementation means as a 3rd receive state detection means 268 to detect the receive state of the GPS receive section 96, and a location calculation means 269, by having the GPS receive section 96, the GPS receive section 96 is different at the point connected to the power supply section 28 through the switching means SW3 which is a means for switching.

[0088] This GPS receive section 96 performs magnification and a recovery while doing the down convert of the electric wave from the satellite received with the antenna 961 for GPS. Moreover, the 3rd receive state detection means 268 detects the received electrical potential difference in the demodulator circuit of the GPS receive section 96. Moreover, the location calculation means 269 performs predetermined data processing using the positioning information from at least three sets of the satellites to which it restored in the GPS receive section 96, and acquires the positional information shown by lat/long.

[0089] In addition, ID information on a base station and the location information which corresponds about the positional information by the computed lat/long similarly are encoded, and it memorizes, for example, north latitude 42 degrees and the east longitude of 135 degrees are computed, and if the location is Sannomiya, Kobe-shi, "Kobe" and "Sannomiya" will be outputted to the 1st storage section 32 as location information.

[0090] Moreover, like switching means SW1 and SW2, a switching means SW3 consists of solid state switches etc., and is connected to CPU261. And while being set up so that a switching means SW1 may serve as ON in an initial state, switching means SW2 and SW3 may serve as OFF and the wireless transceiver section 20 may operate. When the receive state of the wireless transceiver section 20 is not good, switching means SW1 and SW3 serve as OFF. It is set up so that a switching means SW2 may serve as ON and wireless transceiver section 20' may operate. It is set up so that switching means SW1 and SW2 may serve as OFF when the receive state of wireless transceiver section 20' is not good, a switching means SW3 may serve as ON and the GPS receive section 96 may operate.

[0091] The location information acquired when this GPS receive section 96 operated is transmitted to image photography equipment 94 by the wireless transceiver section 20 using transceiver ability. Therefore, image photography equipment 94 has composition equipped with the same wireless transceiver section 20 as the image photography equipment 74 shown in drawing 8, and 20'. For this reason, explanation of image photography equipment 94 is omitted.

[0092] Drawing 12 is a flow chart for explaining actuation of the location information system 90 constituted as mentioned above. First, each electric power switch of the pocket communication device 92 and image photography equipment 94 is turned on, and it changes into the condition that the location



information record system 90 can operate (step # 71). In this initial state, it is in the condition that the wireless transceiver section 20 of the pocket communication device 92 can operate. And it is distinguished whether the detection directions carbon button 125 of the pocket communication device 92 was turned on (step # 73), and if a judgment is affirmed, it will be distinguished whether the receive state of the wireless transceiver section 20 is good (step # 75). In addition, if a judgment is denied by step #73, it will stand by until the detection directions carbon button 125 is turned on.

[0093] Step # If a judgment is affirmed by 75, ID information will be extracted by ID information extract means 266 out of the signal to which it restored in the recovery section 202 of the wireless transceiver section 20, and the location information corresponding to the extracted ID information will be retrieved from the 1st storage section 32 (step # 77). This retrieval is performed based on the table D shown in drawing 3 like the case of the 1st operation gestalt, and the retrieved location information is memorized by RAM263 and displayed on coincidence as "Sannomiya" by the display 122 (step # 79).

[0094] When the location information displayed on the display 122 is not suitable, suitable location information can be chosen from Table D by pushing the predetermined function key of the key section 123. Moreover, it is also possible to choose location information from Table B and Table C suitably by pushing a predetermined function key as mentioned above. In this case, that location information that made manual selection is memorized by RAM263, and is displayed on coincidence by the display 122.

[0095] Step # If a judgment is denied by 75, the wireless transceiver section 20 which suited the drive condition by the switching means SW1 and SW2 which are means for switching will be intercepted, and wireless transceiver section 20' which suited the cut off state will drive (step # 81). And it is distinguished whether the receive state of wireless transceiver section 20' is good succeedingly (step # 83), and if a judgment is affirmed, it will shift to step #77.

[0096] That is, ID information (ID information on base stations, such as a cellular phone and a land mobile radiotelephone) will be extracted by ID information extract means 266 out of the signal to which it restored by recovery section 202 of wireless transceiver section 20' , and the location information corresponding to the extracted ID information will be retrieved from the 1st storage section 32. Retrieval in this case is performed based on the table C shown in drawing 3 , and it is displayed on a display 122 as "Kobe" while the retrieved location information is memorized by RAM263.

[0097] Step # If a judgment is denied by 83, wireless transceiver section 20' which suited the drive condition by the switching means SW2 and SW3 which are means for switching will be intercepted, and the GPS receive section 96 which suited the cut off state will drive (step # 85). And it is distinguished whether the receive state of the GPS receive section 96 is good succeedingly (step # 87), and if a judgment is affirmed, it will shift to step #77.

[0098] That is, based on the signal to which it restored in the GPS receive section 96, lat/long is computed by the location calculation means 269, the location information corresponding to the computed lat/long is read from the 1st storage section 32, RAM263 memorizes, and a location name is displayed on coincidence by the display 122.

[0099] Step # When a judgment is denied by 87, manual selection of the suitable location information is made from one table of the tables B and D by pushing the predetermined function key of the key section 123 (step # 89). By pushing a predetermined function key and deciding location information, it shifts to step #79, and the location information chosen by this is memorized by RAM263, and is displayed on coincidence by the display 122.

[0100] Subsequently, if it is distinguished whether the transfer directions carbon button 126 of the pocket communication device 92 was turned on (step # 91) and a judgment is affirmed, while the location information memorized by RAM263 will be read, it encodes in the channel codec section 22, and this location information is transmitted by the wireless transceiver section 20 through an antenna 124 (step # 93). In addition, when a judgment is denied by step #91, it stands by until the transfer directions carbon button 126 is turned on.

[0101] Step # It is received by the wireless transceiver section 40 (when using PHS) of image

photography equipment 94, or wireless transceiver section 40' (when using communication system, such as a cellular phone), and the location information transmitted by 93 gets over (step # 95). The location information encoded is changed into the location data which correspond from LUT46 (step # 97). This changed location data is memorized by the storage section 48, and the location information on a display 122 and these contents (for example, "Sannomiya" or "Kobe") is displayed on coincidence by the display 145 (step # 99).

[0102] If it is distinguished whether the release carbon button 148 was turned on (step # 101) and a judgment is affirmed in this condition, a series of photography actuation of opening and closing a shutter by the exposure controlling mechanism section 58 will be performed, and the optical image of a photographic subject will be recorded on a silver halide film 142 (step # 103). And rolling up by the following coma is performed and the location information encoded by coincidence to the magnetic-recording field 150 of a silver halide film 142 is recorded by the magnetic head 501 (step # 105).

[0103] Step # When a judgment is denied by 101, it stands by until the release carbon button 148 is turned on. Then, it is distinguished whether the electric power switch was turned off (step # 107), if a judgment is affirmed, a series of actuation will be ended, and if a judgment is denied, actuation of return and after that will be repeatedly performed by step #101. In addition, when the photography location was changed and retrieval of location information is newly needed, actuation after step #73 will be performed repeatedly.

[0104] Thus, since the pocket communication device 92 is equipped with the positioning means for acquiring location information according to the location information record system 90 which consists of a pocket communication device 92 concerning the 3rd constituted operation gestalt, and image photography equipment 94, a positioning means becomes unnecessary at image photography equipment 94, and the miniaturization of image photography equipment 94 is promoted. Moreover, location information is preferentially acquired using PHS, and in PHS, since the service area of each base station is narrow compared with the communication system of a cellular phone or a land mobile radiotelephone, detailed location information can be acquired.

[0105] Moreover, in the area which cannot use PHS by the reason of the base station not being installed, location information can be acquired by using communication system with which the base station is installed comparatively broadly, such as a cellular phone and a land mobile radiotelephone, and it becomes possible to record this location information on the record medium of image photography equipment.

[0106] Furthermore, in the area where PHS cannot use communication system, such as a cellular phone,, either, location information can be acquired by using GPS and it becomes possible to record this location information on the record medium of image photography equipment. Moreover, since GPS is used only when communication system, such as a cellular phone, cannot use PHS, either, as a result of it becoming unnecessary to be able to attain power-saving compared with the case where only GPS is used, and to make a built-in cell large beyond the need, the miniaturization of the pocket communication device 92 is promoted.

[0107] In addition, since the use population using PHS of a pocket communication device is increasing in recent years, the location information record system 90 can build easily only by establishing the wireless transceiver section and the GPS receive section which use communication system, such as a cellular phone, for the pocket communication device using this conventional PHS, the positioning means, etc.

[0108] The location information record system which consists of the pocket communication device and image photography equipment of this invention can adopt various deformation modes which it is not limited to the thing of a configuration of starting the above-mentioned operation gestalt, and are described below.

[0109] (1) With the above-mentioned operation gestalt, although the image photography equipments 14, 74, and 94 are constituted communicating a control signal among the pocket communication devices 12, 72, and 92 so that location information may be received, they can perform only reception of location

information, without communicating a control signal among the pocket communication devices 12, 72, and 92. In this case, modulation section 403,403' will be needed for the image photography equipments 14, 74, and 94, and, thereby, the configuration of wireless section 401,401' can be simplified.

[0110] (2) Although the image photography equipments 14, 74, and 94 consist of above-mentioned operation gestalten so that the direct reception of the electric wave transmitted from the pocket communication devices 12, 72, and 92, without minding a base station by using transceiver ability can be carried out, it is also possible to constitute so that the electric wave transmitted from the pocket communication devices 12, 72, and 92 can be received through a base station. In this case, what is necessary is just to consider the wireless transceiver section 40 (or if it to be in the image photography equipments 74 and 94 wireless transceiver section 40') of the image photography equipments 14, 74, and 94 as the configuration in which a base station and communication are possible.

[0111] (3) It is also possible to transmit the querying signal of the present location of a local station to an information center through a base station, to receive the reply of the present location of a local station from an information center, and to use the location information by the reply with the above-mentioned operation gestalt, for example, although he is trying for the pocket communication devices 12, 72, and 92 to acquire the location information on a local station based on ID information on a base station. In this case, what is necessary is just to form the querying signal generation means and a location conversion means to change into location data from the encoded location information by reply in the pocket communication devices 12, 72, and 92. In this case, a positioning means will consist of a querying signal generation means and a location conversion means.

[0112] (4) With the above-mentioned operation gestalt, the location information acquired by actuation of the GPS receive section 96 may be made to be transmitted to image photography equipment 94 by wireless transceiver section 20', although transmitted to image photography equipment 94 by the wireless transceiver section 20 using transceiver ability. In this case, with image photography equipment 94, the transmitted location information will be received by wireless transceiver section 40'.

[0113] (5) Although the above-mentioned operation gestalt explained to the example the communication system which can talk PHS in public mobile service of Japan, and a cellular phone (or land mobile radiotelephone) over the telephone, this invention can use not only such communication system but present, other future communication system, or the communication system of other countries. Moreover, if an electric wave including ID information on a base station to this base station (base information) is transmitted, it can use also with the communication system of an and also [ it is message impossible ]. Moreover, although he is trying to use two different communication system, PHS and a cellular phone (or land mobile radiotelephone), with the operation gestalt of the above 2nd, it is also possible to use three or more different communication system.

[0114] (6) While the pocket communication device 72 is equipped with the wireless transceiver section 20 and wireless transceiver section 20' with the operation gestalt of the above 2nd, although image photography equipment 74 is equipped with the wireless transceiver section 40 and wireless transceiver section 40', it can also consider image photography equipment 74 as the configuration (namely, configuration of drawing 4 in the 1st operation gestalt) equipped only with the wireless transceiver section 40. In this case, what is necessary is for the wireless transceiver section 20 just to be made to perform it using PHS, when transmitting location information to image photography equipment 74 even if the pocket communication device 72 is the case where location information is acquired by wireless transceiver section 20' using the system of a cellular phone or a land mobile radiotelephone.

[0115] (7) Although he is trying to use two different communication system, PHS and a cellular phone (or land mobile radiotelephone), with the operation gestalt of the above 3rd in addition to GPS, it is also possible to use PHS or a cellular phone (or land mobile radiotelephone) in addition to GPS. Moreover, you may make it use three or more different communication system in addition to GPS. In this case, what is necessary is to give priority to three or more communication system over GPS, and just to use it.

[0116] (8) With the above-mentioned operation gestalt, although he is trying for the pocket communication devices 12, 72, and 92 to transmit location information to the image photography equipments 14, 74, and 94 using an electric wave, they can also transmit location information using an infrared communication system. In this case, what is necessary is for the modulation section, an amplifier, a mechanical component, a light emitting device, etc. to be consisted of by the pocket communication devices 12, 72, and 92, to prepare the infrared transmitting section controlled by the control section 26, and for a photo detector, an amplifier, the recovery section, etc. to be consisted of by the image photography equipments 14, 74, and 94, and just to prepare the infrared receive section controlled by the control section 52.

[0117] Namely, what is necessary is to replace with the wireless transceiver section 40, the channel codec section 42, and the codec section 44, and just to establish the infrared receive section 100 which shows according to a two-dot chain line in the image photography equipment 14 shown in drawing 4, while forming the infrared transmitting section 98 shown in the pocket communication device 12 of drawing 2 according to a two-dot chain line, if it explains in instantiation. Thus, when infrared communication system is used, structure can be simplified comparatively.

[0118] Moreover, it is also possible to transmit the location information which connects by the communication wire and obtained between the pocket communication devices 12, 72, and 92, the image photography equipments 14 and 74, and 94 with the pocket communication devices 12, 72, and 92 through this communication wire to the image photography equipments 14, 74, and 94.

[0119] (9) Although the pocket communication devices 72 and 92 in the 2nd and 3rd operation gestalt operate the wireless receive section using PHS preferentially and he is trying to search for location information with the above-mentioned operation gestalt, it is also possible to choose preferentially the one where the receive state of the wireless receive sections using communication system, such as a wireless receive section using PHS and a cellular phone, is better, and to search for location information using the selected wireless receive section.

[0120] (10) With the above-mentioned operation gestalt, although the image photography equipments 14, 74, and 94 consist of a still camera (film-based camera) which adopted the film photo method, they may consist of a digital camera, a video camera, etc. which adopted the electronic charge recording system. In this case, CCD as an area sensor to which the image pick-up section carries out photo electric conversion of the optical image of a photographic subject to a picture signal (Charge Coupled Device), The optical image of a photographic subject to the lens which carries out image formation to CCD, and the picture signal acquired by photo electric conversion A/D conversion, The image-processing section which performs well-known signal processing, such as gamma processing and compression processing, a magnetic tape, It will have a write-in means for writing data in the Records Department as record media, such as semi-conductor storage devices, such as magnetic-recording media, such as a magnetic disk and a magneto-optic disk, and a RAM disk, a RAM card, and this Records Department etc.

[0121]

[Effect of the Invention] Since it has the positioning means for acquiring the location information on a local station to a pocket communication device, and a transmitting means to transmit the location information acquired by the positioning means to image photography equipment according to invention of claim 1 as explained above, the miniaturization of image photography equipment can be promoted.

[0122] Moreover, since the positioning means is equipped with the wireless receive section which receives an electric wave including the base information transmitted from a base station, and a signal transduction means to acquire location information from the base information included in the received electric wave according to invention of claim 2, the location information on a local station can be acquired quickly.

[0123] Moreover, according to invention of claim 3, a wireless receive section has the 1st wireless receive section and the 2nd wireless receive section which can receive the electric wave from which communication system differs mutually. The means for switching to which a positioning means switches

positioning actuation of the 1st wireless receive section and the 2nd wireless receive section, Since positioning actuation is switched to the 2nd wireless receive section when it has further a receive state detection means to detect the receive state of the 1st wireless receive section and the 1st wireless receive section does not fill predetermined receiving level with a means for switching Location information can be acquired in large area and location information can be certainly recorded according to photography actuation.

[0124] With moreover, the GPS receive section which receives the electric wave in which a positioning means includes the positioning information from two or more satellites according to invention of claim 4 A signal transduction means to acquire location information from the positioning information included in the received electric wave, The means for switching which switches positioning actuation of a wireless receive section and a GPS receive section, Since positioning actuation is switched to said GPS receive section when it has further a receive state detection means to detect the receive state of a wireless receive section and a wireless receive section does not fill predetermined receiving level with a means for switching Location information can be acquired in large area and location information can be certainly recorded according to photography actuation.

[0125] Moreover, according to invention of claim 5, a wireless receive section has the 1st wireless receive section and the 2nd wireless receive section where communication system differs mutually and which can receive an electric wave. A 1st receive state detection means by which a receive state detection means detects the receive state of the 1st wireless receive section, It has a 2nd receive state detection means to detect the receive state of the 2nd wireless receive section. A means for switching switches positioning actuation to the 2nd wireless receive section, when the receive state of the 1st wireless receive section does not fulfill predetermined receiving level. Since positioning actuation is switched to said GPS receive section when the receive state of the 2nd wireless receive section does not fulfill predetermined receiving level, location information can be acquired in larger area and location information can be certainly recorded according to photography actuation.

[0126] Moreover, since image photography equipment is equipped with a receiving means to by which the location information transmitted from a pocket communication device according to claim 1 to 5 is receivable, and a record means record the received location information on a record medium according to photography actuation according to invention of claim 6, as a result of being needed the positioning means for acquiring location information for image photography equipment, the miniaturization of image photography equipment can promote.

[0127] Moreover, since image photography equipment is equipped with a maintenance means to by which the location information transmitted from a pocket communication device can be held and he is trying for a record means to record the location information currently held at the maintenance means on a record medium according to photography actuation according to invention of claim 7, as a result of it becoming unnecessary to acquire location information from a pocket communication device at every photography, convenience can raise by the case where a photograph is taken in the same location.

[0128] Moreover, since the location information record system is equipped with a pocket communication device according to claim 1 to 5 and image photography equipment according to claim 6 or 7, as a result of needing the positioning means for acquiring location information for image photography equipment according to invention of claim 8, the miniaturization of image photography equipment can be promoted.

[0129] Moreover, according to invention of claim 9, since a pocket communication device and image photography equipment are constituted possible [ direct communication ] using transceiver ability, they can simplify image photography equipment.

[0130] Moreover, according to invention of claim 10, since a pocket communication device and image photography equipment are constituted possible [ a communication link ] using the communication system of 1 in public mobile service, they can transmit certainly the location information acquired with the pocket communication device to image photography equipment.

[0131] Moreover, according to invention of claim 11, since a pocket communication device and said

image photography equipment are constituted possible [ direct communication ] using infrared communication system, they can simplify image photography equipment.

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[Translation done.]

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**DESCRIPTION OF DRAWINGS**

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[Brief Description of the Drawings]

[Drawing 1] It is the appearance perspective view of the location information record system which consists of a pocket communication device concerning the 1st operation gestalt of this invention, and image photography equipment.

[Drawing 2] It is a block diagram for explaining the function of the pocket communication device shown in drawing 1 .

[Drawing 3] It is drawing showing the file format of the location information in the 1st storage section used for the pocket communication device shown in drawing 1 .

[Drawing 4] It is a block diagram for explaining the function of the image photography equipment shown in drawing 1 .

[Drawing 5] It is a flow chart for explaining an example of actuation of the location information record system shown in drawing 1 .

[Drawing 6] It is the appearance perspective view of the location information record system which consists of a pocket communication device concerning the 2nd operation gestalt of this invention, and image photography equipment.

[Drawing 7] It is a block diagram for explaining the function of the pocket communication device shown in drawing 6 .

[Drawing 8] It is a block diagram for explaining the function of the image photography equipment shown in drawing 6 .

[Drawing 9] It is a flow chart for explaining an example of actuation of the location information record system shown in drawing 6 .

[Drawing 10] It is the appearance perspective view of the location information record system which consists of a pocket communication device concerning the 3rd operation gestalt of this invention, and image photography equipment.

[Drawing 11] It is a block diagram for explaining the function of the pocket communication device shown in drawing 10 .

[Drawing 12] It is a flow chart for explaining an example of actuation of the location information record system shown in drawing 10 .

[Description of Notations]

10, 70, 90 Location information record system

12, 72, 92 Pocket communication device

14, 74, 94 Image photography equipment

20 20' The wireless transceiver section of a pocket communication device.  
 32 1st Storage Section  
 40 40' The wireless transceiver section of image photography equipment.  
 48 Storage Section (Maintenance Means)  
 96 GPS Receive Section  
 142 Silver Halide Film (Record Medium)  
 201,201' Wireless section  
 202,202' Recovery section  
 203,203' Modulation section  
 264 1st Receive State Detecting Element  
 265 Quality Distinction Means  
 266 ID Information Extract Means  
 267 2nd Receive State Detecting Element  
 268 3rd Receive State Detecting Element  
 269 Location Calculation Means  
 401,401' Wireless section  
 402,402' Recovery section  
 403,403' Modulation section

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